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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,979	04/28/2005	Satoshi Hatori	271399US3PCT	2957

22850 7590 07/16/2008

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EXAMINER	
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ART UNIT	PAPER NUMBER
2852	

NOTIFICATION DATE	DELIVERY MODE
07/16/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/532,979	HATORI ET AL.	
	Examiner	Art Unit	
	Laura K. Roth	2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24,26-30 and 33-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-23,26,28-30 and 33-52* is/are rejected.

7)☒ Claim(s) *5, 24, and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3, 6, 7, 18, 21, 33-38, 41-43, 48 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455).

Regarding claim 1, Asano et al. (US 5,289,234) teach a process cartridge (fig.9-11) comprising: a frame body (fig.9&10, #10) made up of at least first (fig.9-11, #101) and second (fig.9-11, #102) frame bodies that are movable relative to each other (compare fig.9 & 11) to form a space (fig.9&10) in an open state (fig.9) and to close the space in a closed state (fig.11); a frame body positioning member positioning the first and second frame bodies (fig.9, #103); a latent image bearing member (fig.11, #1), supported by the frame body (fig.10, #13/131), and replaceable in the process cartridge in a first direction (fig.9, see arrow) via the space formed by the first and second frame bodies (see fig. 9 & 10); a developing unit (fig.9, #3) supplying a developing agent to the latent image bearing member, the developing unit configured to be replaceable in the closed state via a space different than the space formed by the first and second frame bodies (col.3, ln.63-64; fig.2: the cartridge, and thus the developing unit, is removably or

replaceably installed in the image forming apparatus through some space in the image forming apparatus) and configured to be replaceable in a state where the latent image bearing member is supported by the frame body (col.3, ln.63-64; fig.2: the cartridge, and thus the developing unit, is removably or replaceably installed in the image forming apparatus through some space in the image forming apparatus while the image bearing member, likewise, the cartridge an developing unit would be replaceably installed with the image bearing member still supported by the frame body since the cartridge is removed as one complete unit); and a developing position determining member (fig.8, #141 engages with holes in ends of developer roller, see col.8, ln.46-50), disposed at a non-overlapping position relative to the frame body positioning member (fig.8, #10b-10d does not overlap #103), and positioning the developing unit with respect to the frame body (see col.8, ln.46-50).

Regarding claim 3, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a cleaning unit (fig.9, #5) cleaning residual toner on the latent image bearing member; and a cleaning position determining member (fig.8&9, #103), disposed at a non-overlapping position relative to the frame body position determining member and the developing position determining member (see fig.8, #103 does not overlap #141/14), and positioning the cleaning unit with respect to the frame body (fig.9, #103 positions #5 with respect to #102).

Regarding claim 6, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a charging unit (fig.11&15, #2) uniformly charging the latent image bearing member, said charging unit being positioned (fig.15, positioned with relation to body via

#242/232) with respect to the frame body at an non-overlapping position relative to the frame body position determining member, the developing position determining member and the cleaning position determining member (fig.15, #242 does not overlap location where cleaning member is joined which is the same as frame body position member and does not overlap axis of the developing roller).

Regarding claim 7, Asano et al. (US 5,289,234) teach a process cartridge wherein at least one of the latent image bearing member, the cleaning unit, the charging unit and the developing unit is replaced after removing the process cartridge from a main body of an image forming apparatus (fig.9-10, #1 capable of being attached/detached; col.8, ln.62-col.9, ln.1: drum is inserted, cartridge is closed, then put into printer, thus, it would be removed to be replaced).

Regarding claim 18, Asano et al. (US 5,289,234) teach a process cartridge further comprising: an accommodating part accommodating the toner or a newly supplied toner (fig.2, right hand part of #3).

Regarding claim 21, Asano et al. (US 5,289,234) teach an image forming apparatus (fig.2) for visualizing a latent image formed on a latent image bearing member into a toner image, comprising: at least one detachable process cartridge (fig.2, #1-3, #5-6) according to claim 1 (see rejection of claim 1), at least one of the latent image bearing member and the developing unit being replaceable with respect to the process cartridge (fig.9-11, #1 can be attached, detached and is therefore replacable).

Regarding claim 31, Asano et al. (US 5,289,234) teach a process cartridge (fig.2, #1-3, and 5-6) configured to be detachable with respect to an image forming apparatus

(col.3, ln.63-64), comprising: a latent image bearing member (fig.11, #1); and at least three process units provided integrally with the latent image bearing member (fig.9, #2, #3 and #5), two of the at least three process units are movable relative to each other (fig.9, #3 and #5) to form a space in an open state (fig.9) and to close the space in a closed state (fig.11), each of the latent image bearing member and the process units being independently replaceable (see fig.8, all come apart), the latent image bearing member is replaceable via the space formed by the two process units (see fig.9), and one of the at least three process units is replaceable in the closed state via a space different than the space formed by the two process units (fig.14 and 15).

Regarding claim 32, Asano et al. (US 5,289,234) teach a process cartridge wherein the three process units include a cleaning unit (fig.9, #5), a developing unit (fig.9, #3) and a charging unit (fig.9, #2).

Regarding claim 33, Asano et al. (US 5,289,234) teach a process cartridge (fig.2, #1-3, and 5-6) configured to be detachable with respect to an image forming apparatus (col.3, ln.63-64), comprising: a frame body (fig.11, #102/101) made up of at least first and second frame bodies (fig.9-11, #101/102) that are movable relative to each other to form a space in an open state (fig.9-10) and to close the space in a closed state (fig.11); a latent image bearing member supported by the frame body (fig.11, #1) and replaceable in a first direction (fig.9, direction of arrow); and at least one process unit provided integrally with the latent image bearing member and supported by the frame body (fig.11, #2), the at least one process unit configured to be replaceable in the closed state via a space different than the space formed by the first and second frame

bodies (fig.14-15 depict a closed state & #2 is replaced via a different space) and configured to be replaceable in a state where the latent image bearing member is supported by the frame body (fig.14-15 depict a state in which #2 is replaced while #1 is supported by the frame body), the latent image bearing member (fig.9 and 10) and the at least one process unit (fig.14 and 15) being independently replaceable, wherein a cleaning unit forms one process unit (fig.9, #5 is one process unit).

Note: the abstract of Asano et al. (US 5,289,234) states "At least one of the photosensitive member and the charging brush is detachable..." Thus, while the examples in Asano et al. (US 5,289,234) only show two distinct embodiments with only one replaceable part, Asano et al. (US 5,289,234) allows for both the be replaceable in the same imaging cartridge.

Regarding claim 34, Asano et al. (US 5,289,234) teach a process cartridge wherein the latent image bearing member and the at least one process unit are replaceable without requiring other process units to be removed (see fig.9-10 and fig.14-15, respectively).

Regarding claim 35, Asano et al. (US 5,289,234) teach a process cartridge wherein the latent image bearing member and the at least one process unit is replaced after removing the process cartridge from the image forming apparatus (col.8, ln.62-col.9, ln.1: drum is inserted, cartridge is closed, then put into printer, thus, it would be removed; col.col.10, ln.6-ln.27: brush is installed on cartridge, then cartridge is inserted into printer, thus, it would be removed).

Regarding claim 36, Asano et al. (US 5,289,234) teach a process cartridge wherein the latent image bearing member is removable from the frame body without requiring the at least one process unit to be removed from the frame body (see fig.9, #2 still in place).

Regarding claim 37, Asano et al. (US 5,289,234) teach a process cartridge wherein the latent image bearing member is removed from the frame body after rotating the cleaning unit (see fig.9-11).

Regarding claim 38, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a cleaning position determining member positioning the cleaning unit with respect to the frame body (fig.9, hinge point #103).

Regarding claim 41, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a charging unit forming one process unit (fig.15, #2), wherein said frame body includes a recess that receives the charging unit (fig.14 & 15, #241 in #100).

Regarding claim 42, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a developing unit (fig.8, #31); and a developing positioning member positioning the developing unit with respect to the frame body (fig.8, #141 engages with holes in ends of developer roller, see col.8, ln.46-50).

Regarding claim 43, Asano et al. (US 5,289,234) teach a process cartridge wherein said developing position determining member positions a developing reference shaft of the developing unit with respect to a hole in the frame body forming a bearing (fig.8, projection #141 positions the reference shaft or axis of roller #31 with respect to holes #10c and bears #31).

Regarding claim 48, Asano et al. (US 5,289,234) teach a process cartridge further comprising: an accommodating part accommodating the toner or a newly supplied toner (fig.2, right hand side of #3).

Regarding claim 51, Asano et al. (US 5,289,234) teach an image forming apparatus for visualizing a latent image formed on a latent image bearing member into a toner image (fig.2), comprising: at least one detachable process cartridge (fig.2, #1-3, 5-6) according to claim 33 (see rejection of claim 33), at least one of the latent image bearing member, the developing unit and the cleaning unit being replaceable with respect to the process cartridge (fig.9-11, #1 can be attached, detached and is therefore replaceable).

Note: the abstract of Asano et al. (US 5,289,234) states "At least one of the photosensitive member and the charging brush is detachable..." Thus, while the examples in Asano et al. (US 5,289,234) only show two distinct embodiments with only one replaceable part, Asano et al. (US 5,289,234) allows for both the be replaceable in the same imaging cartridge.

However, Asano et al. (US 5,289,234) fail to teach the developing unit configured to be replaceable in the process cartridge in the closed state via a space in the process cartridge in a state where the latent image bearing member remains in the frame body.

Regarding claim 1, Kubota et al. (US 4,708,455) teach a process cartridge (fig.3) comprising: a frame body (fig.3); a latent image bearing member, supported by the frame body (fig.3, #3); a developing unit supplying a developing agent to the latent image bearing member (fig.3, #5), the developing unit configured to be replaceable in

the process cartridge in a second direction (fig.3, direction of Arrow I) via a space in the process cartridge (fig.3, through which arrow I directs) and configured to be replaceable in the process cartridge in a state where the latent image bearing member is supported by the frame body (fig.3, #3 still in frame); and a developing position determining member positioning the developing unit with respect to the frame body (fig.3, #5c_3 &17a_4).

Regarding claim 33, Kubota et al. (US 4,708,455) teach a process cartridge (fig.3) configured to be detachable with respect to an image forming apparatus (see fig.15), comprising: a frame body (fig.3, #17d); a latent image bearing member supported by the frame body (fig.3, #3); and at least one process unit provided integrally with the latent image bearing member and supported by the frame body (fig.3, #5 provided with #3 and supported by #17d), the at least one process unit configured to be replaceable in the process cartridge in a second direction (fig.3, direction of arrow I) via a space in the process cartridge (fig.3, space through which arrow I passes) and configured to be replaceable in the process cartridge in a state where the latent image baring member is supported by the frame body (fig.3, #3 still in #17d), the latent image bearing member and the at least one process unit being independently replaceable (fig.3, #5 is replaceable as well as #3).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the process cartridge of Asano et al. (US 5,289,234) by configuring the second frame to allow the developing device to be replaceable in a similar manner to that of Kubota et al. (US 4,708,455) in order to allow easy replacement of the

developer cartridge necessitated by developer exhaustion and ensure accurate placement of the developer roller in conjunction with the latent image bearing member while preventing damage to either.

Regarding claim 1, it would have been further obvious to one of ordinary skill in the art at the time of invention that upon combination, with use of the developer positioning features of Kubota et al. (US 4,708,455), the developing position determining member (fig.3, #$5c_3$ &$17a_4$) would be disposed at a non-overlapping position relative to the frame body positioning member (Asano et al. (US 5,289,234), fig.9, #103) and the developing unit would be configured to be replaceable in a second direction substantially perpendicular to the first direction.

Claims 4, 23, 26, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) and in view of Saito et al. (US Pub. 2003/0091366).

Regarding claim 4, Asano et al. (US 5,289,234) teach a process cartridge (fig.9-11) comprising: a frame body (fig.9&10, #10) made up of at least first (fig.9-1, #101) and second (fig.9-11, #102) frame bodies that are movable relative to each other (compare fig.9 & 11) to form a space in an open state and to close the space in a closed state (fig.9&10); a frame body positioning member (fig.9, #103) positioning the first and second frame bodies; a latent image bearing member (fig.11, #1), supported by the frame body (fig.10, #13/131), and replaceable in a first direction via the space formed by the first and second frame bodies (see fig.9 & 10); a developing unit supplying a

developing agent to the latent image bearing member (fig.9, #3); a cleaning unit (fig.9, #5) cleaning residual toner on the latent image bearing member.

Regarding claim 23, Asano et al. (US 5,289,234) teach a process cartridge (fig.9-11) comprising: a frame body (fig.9&10, #10) made up of at least a first frame body (fig.9-1, #101) and a second frame body (fig.9-11, #102) that are movable relative to each other (compare fig.9 & 11) to form a space (fig.9&10); a latent image bearing member (fig.11, #1) supported by the frame body (fig.10, #13/131) and replaceable in a first direction via the space formed by the first and second frame bodies (see fig.9 & 10); a developing unit supplying a toner to the latent image bearing member (fig.9, #3); a cleaning unit (fig.9, #5) cleaning the toner on the latent image bearing member; and a frame body positioning member (fig.9, #103), positioning the first and second frame bodies, each of the developing unit and the cleaning unit is further configured to be positioned by only one of the first frame body or the second frame body (see fig.9, #5 and #3).

However, Asano et al. (US 5,289,234) fail to teach the developing unit configured to be replaceable in the process cartridge in the closed state via a space in the process cartridge in a state where the latent image bearing member remains in the frame body.

Regarding claim 4, Kubota et al. (US 4,708,455) teach a process cartridge (fig.3) comprising: a frame body (fig.3); a latent image bearing member, supported by the frame body (fig.3, #3); a developing unit supplying a developing agent to the latent image bearing member (fig.3, #5), the developing unit configured to be replaceable in the closed state in a second direction via a space (fig.3, see arrow I and space through

which it passes); and a developing position determining member positioning the developing unit with respect to the frame body (fig.3, #5c_3 &17a_4).

Regarding claim 23, Kubota et al. (US 4,708,455) teach a process cartridge (fig.3) comprising: a frame body (fig.3); a latent image bearing member supported by the frame body (fig.3, #3); a developing unit supplying a toner to the latent image bearing member (fig.3, #5) and configured to be replaceable in the process cartridge (fig.3, following arrow I) in a state in a second direction (fig.3, arrow I) where the latent image bearing member remains supported by the frame body (fig.3, #3 still in #17d); a developing position determining member positioning the developing unit with respect to the frame body (fig.3, #5c_3 &17a_4).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the process cartridge of Asano et al. (US 5,289,234) by configuring the second frame to allow the developing device to be replaceable in a similar manner to that of Kubota et al. (US 4,708,455) in order to allow easy replacement of the developer cartridge necessitated by developer exhaustion and ensure accurate placement of the developer roller in conjunction with the latent image bearing member while preventing damage to either.

Regarding claims 4 and 23, it would have been further obvious to one of ordinary skill in the art at the time of invention that upon combination, with use of the developer positioning features of Kubota et al. (US 4,708,455), the developing position determining member (fig.3, #5c_3 &17a_4) would be disposed at a non-overlapping position relative to the frame body positioning member (Asano et al. (US 5,289,234),

fig.9, #103) and the developing unit would be configured to be replaceable in a second direction substantially perpendicular to the first direction.

However, Asano et al. (US 5,289,234) also fail to teach a cleaning unit configured to be replaceable from the process cartridge; a cleaning position determining member, disposed at a non-overlapping position relative to the developing position determining member, positioning the cleaning unit with respect to the frame body.

Regarding claim 4, Saito et al. (US Pub. 2003/0091366) teach a process cartridge (fig.10) comprising: a frame body (fig.10, #60) made up of at least first (fig.10, #60a) and second (fig.10, #60d) frame bodies that are movable relative to each other to form a space in an open state and to close the space in a closed state (see fig.10 vs. fig.11); a frame body positioning member positioning the first and second frame bodies (fig.10&11, #60c); a latent image bearing member, supported by the frame body (fig.10, #160), and replaceable via the space formed by the first and second frame bodies (see fig. 12); a developing unit supplying a developing agent to the latent image bearing member (fig.10, #200 & #190), the developing unit configured to be replaceable (see fig.31); and a developing position determining member (fig.10, the bottom and left wall of A,B), disposed at a non-overlapping position relative to the frame body positioning member, and positioning the developing unit with respect to the frame body; a cleaning unit cleaning residual toner on the latent image bearing member (fig.10, #220); and a cleaning position determining member (fig.16, #60a-4) positioning the cleaning unit with respect to the frame body, said cleaning unit being replaceable via the space formed by the first and second frame bodies (see fig.14 & 16).

Regarding claim 23, Saito et al. (US Pub. 2003/0091366) teach a process cartridge (fig.10) comprising: a frame body (fig.10, #60) made up of at least a first frame body (fig.10, #60a) and a second flame body (fig.10, #60d) that are movable relative to each other to form a space (see fig.10 vs. fig.11); a latent image bearing member supported by the flame body (fig.10, #160) and replaceable via the space formed by the first and second frame bodies (see fig. 12); a developing unit supplying a toner to the latent image bearing member (fig.10, #200 & #190) and configured to be replaceable from the process cartridge (see fig. 31); a developing position determining member positioning the developing unit with respect to the frame body (fig.10, the bottom and left wall of A,B); a cleaning unit cleaning the toner on the latent image bearing member (fig.10, #220) and configured to be replaceable from the process cartridge (see fig.14); a cleaning position determining member (fig.16, #60a-4), disposed at a non-overlapping position relative to the developing position determining member (fig.16, #60a-3 and #60a-4 do not overlap side & bottom walls of A in a vertical direction), positioning the cleaning unit with respect to the frame body; and a frame body positioning member (fig.10, #60a-2, #60d-4, and #60c), disposed at a non-overlapping position relative to the developing position determining member (see relations in a vertical direction), and positioning the first and second frame bodies, each of the developing unit and the cleaning unit is further configured to be positioned by only one of the first frame body or the second frame body (fig.10, #200/190 positioned in #60d & A, #220 positioned in #60a).

Regarding claim 26, Saito et al. (US Pub. 2003/0091366) teach a process cartridge wherein said cleaning unit is replaceable by removing the cleaning position determining member after the first and second frame bodies are moved relative to each other to form the space (fig.16, after #220 removed from #60a, #60a-4 is removed from slots #230d).

Regarding claim 28, Saito et al. (US Pub. 2003/0091366) teach a process cartridge further comprising: a charging unit uniformly charging the latent image bearing member (fig.10, #170), said charging unit being positioned with respect to the frame body at an non-overlapping position relative to the frame body position determining member, the developing position determining member and the cleaning position determining member (fig.18, #170 positioned via central shaft, which does not vertically overlap #60a-2, left wall of A, nor cleaning positioning member located above the marking #60a).

Regarding claim 29, Saito et al. (US Pub. 2003/0091366) teach an image forming apparatus (fig.2) for visualizing a latent image formed on a latent image bearing member into a toner image, comprising: at least one detachable process cartridge according to claim 23 (see fig.10), at least one of the latent image bearing member, the developing unit and the cleaning unit being replaceable with respect to the process cartridge (all three are replaceable, see fig.12, fig.14, and fig.31).

Regarding claim 30, Saito et al. (US Pub. 2003/0091366) teach an image forming apparatus according to claim 29, further comprising: an accommodating part

accommodating a supplied toner (fig.10, portion which also houses #700C and #1200C, houses supplied toner – col.12, ln.62+).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the process cartridge of Asano et al. (US 5,289,234) by incorporating a replaceable cleaning unit as in Saito et al. (US Pub. 2003/0091366) in order to allow non-wasteful replacement of just the cleaning unit when it becomes filled with waste toner (para.0104).

Regarding claims 4 and 23, upon combination of the three structures and teachings, a cleaning position determining member would be disposed at a non-overlapping position relative to the developing position determining member since the two positioning members are on different frame sections.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) as applied to claim 1, and further in view of Noda et al. (US Pub. 2002/0122677).

Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) teach all of the limitations of claim 1, upon which claim 2 depends; additionally, Asano et al. (US 5,289,234) teach a process cartridge wherein said developing unit comprises a developing agent bearing member transporting the developing agent (fig.8, #31) and said developing position determining member comprises a positioning member positioning the latent image bearing member and the developing agent bearing member

(fig.8, #14 supports #31 via #141 and also supports #1 via #142, positioning #31 and #1 together).

However, Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) fail to teach a magnet group inside the developing roller or an angular positioning member.

Regarding claim 2, Noda et al. (US Pub. 2002/0122677) teach a developing unit with a developing agent bearing member (fig.17, #122) and a magnet group provided inside the developing agent bearing member (fig.17, #125a,c,d,e), and having a predetermined main pole direction (fig.18A: main pole direction is to the left in the figure), and an angular positioning member (fig.17, #140) determining the main pole direction of the magnet group with respect to the latent image bearing member (fig.18A&B: relative positions determined by the angular positioning member).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the developing roller of Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) with a magnetic grouping, pole and angular positioning member as in Noda et al. (US Pub. 2002/0122677) to accurately restrict the thickness of a toner layer on the developer delivering member without imparting undue stresses to the developer (para.0029) by restricting it without contact (para.0269, ln.16-17) and by preventing it from being delivered during non-development (para.0293).

Claims 8, 9, 44, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) as applied to claims 1 and 33, and further in view of Ebata et al. (US 5,023,660).

Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) teach all of the limitations of claims 1 and 33 upon which claims 8, 9, 44, and 45 depend.

However, Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) fail to teach receiving a main body driving shaft or a hole in the cartridge wall to receive said shaft.

Regarding claim 8, Ebata et al. (US 5,023,660) teach a process cartridge (fig.2, #3) with a latent image bearing member (fig.2, #1), wherein the latent image bearing member is inserted with a driving shaft (fig.1-2, #4) provided in a main body of an image forming apparatus (col.3, ln.54-55).

Regarding claim 9, Ebata et al. (US 5,023,660) teach a process cartridge (fig.2, #3) with a frame body (fig.2, #3) and with a latent image bearing member (fig.2, #1), wherein the frame body has a hole part for receiving the driving shaft (fig.1, #3a).

Regarding claim 44, Ebata et al. (US 5,023,660) teach a process cartridge (fig.2, #3) with a latent image bearing member (fig.2, #1), wherein said latent image bearing member receives a driving shaft of the image forming apparatus when the process cartridge is loaded into the image forming apparatus (col.4, ln.20-25).

Regarding claim 45, Ebata et al. (US 5,023,660) teach a process cartridge (fig.2, #3) with a frame body (fig.2, #3) and with a latent image bearing member (fig.2, #1), wherein said frame body includes a hole forming a bearing (fig.1, #3a) and receiving the driving shaft of the image forming apparatus (fig.2).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify any of the primary references with the inserted image forming

apparatus main body driving shaft and cartridge wall hole of Ebata et al. (US 5,023,660) to provide a drive transmission that allows the drive mechanism and grounding contacts to be provided inside the drum and cartridge to allow the cartridge parts to be better protected when handling the cartridge (col.2, ln.30-38).

Claims 10-12 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) as applied to claims 1 and 33, and further in view of Kinoshita et al. (US 5,404,203).

Asano et al. (US 5,289,234) teach all of the limitations of claims 1 and 33 upon which claims 10-12 and 46-47 depend.

However, Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) fail to teach the use of a discharge unit and a detection unit.

Regarding claim 10, Kinoshita et al. (US 5,404,203) teach an image forming apparatus comprising a discharge unit (fig.4, #55) and a detection unit (fig.4, #44, #212, #210, and #213 not shown; col.5, ln.47-55).

Regarding claim 11, Kinoshita et al. (US 5,404,203) teach an image forming apparatus wherein said discharge unit comprises an electroluminescence lamp (col.6, ln.58+: lamp 55 emits light).

Regarding claim 12, Kinoshita et al. (US 5,404,203) teach an image forming apparatus wherein said detection unit comprises a potential sensor detecting a potential of the latent image bearing member, a toner density sensor detecting an amount of toner on the latent image bearing member, and a temperature and humidity sensor

detecting a temperature and a humidity within the vicinity of the image bearing member (col.5, ln.47-55).

Regarding claim 46, Kinoshita et al. (US 5,404,203) teach an image forming apparatus further comprising: a discharge unit (fig.4, #55); and a detection unit (fig.4, #44, #212, #210, and #213 not shown; col.5, ln.47-55).

Regarding claim 47, Kinoshita et al. (US 5,404,203) teach an image forming apparatus wherein said detection unit comprises a potential sensor detecting a potential of the latent image bearing member, a toner density sensor detecting an amount of toner on the latent image bearing member, and a temperature and humidity sensor detecting a temperature and a humidity within the vicinity of the image bearing member (col.5, ln.47-55).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify any of the primary references by adding a discharge unit and a detection unit as proposed by Kinoshita et al. (US 5,404,203) to perform an AIDC control to determine image forming conditions to keep image density stable while taking into account the fact that environmental factors and wear on the photoconductor can change the necessary density settings (col.1, ln.14-28). It would have been further obvious to one of ordinary skill in the art at the time of invention to provide these units within the frame of the process cartridge of the primary references since the detection results must be reading conditions in the immediate vicinity of the photosensitive drum for the control to function.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) as applied to claim 1, and further in view of Miyabe et al. (US 5,950,047).

Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) teach all of the limitations of claim 1 upon which claim 13 depends.

However, Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) fail to teach the locations of the electrical contacts for the cartridge.

Regarding claim 13, Miyabe et al. (US 5,950,047) teach a process cartridge wherein electrical wirings for external connection are connectable via one location of the process cartridge (col.2, ln.39-46).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the cartridges of either of the primary references with the electrical connection of Miyabe et al. (US 5,950,047) in order to provide a process cartridge with shorter wiring length and to avoid electrical interference between multiple contact locations (col.2, ln.5-12).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455), as applied to claim 1, and further in view of Ojima et al. (US Pub. 2004/0191663).

Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) teach all of the limitations of claim 1 upon which claims 14 and 15 depend.

However, Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) fail to teach the use of a toner with the specific properties listed in claims 14 and 15.

Regarding claim 14, Ojima et al. (US Pub. 2004/0191663) teach an image forming apparatus using a toner having an average circularity in a range of 0.93 to 1.00 (para.0015: ranges from 0.94 to 0.98).

Regarding claim 15, Ojima et al. (US Pub. 2004/0191663) teach an image forming apparatus wherein said developing unit is configured to use a toner that has an average circularity in a range of 0.93 to 1.00 (para.0015: ranges from 0.94 to 0.98) and a ratio of volume average particle size and a number average particle size in a range of 1.05 to 1.40 (para.0014: range of 1.10 to 1.15).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify either of the primary references to incorporate the toner of Ojima et al. (US Pub. 2004/0191663) in order to effectively prevent the generation of image irregularities during an endurance printing process (para.0014 & 0015).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455), as applied to claim 1, and further in view of Ojima et al. (US Pub. 2004/0191663) and in view of Yamashiro et al. (US 5,328,795).

The limitations of claim 14 are met by the combination as recited above.

However, Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) fail to teach the use of a toner with the specific properties listed in claim 16.

Regarding claim 16, Ojima et al. (US Pub. 2004/0191663) teach an image forming apparatus wherein said developing unit is configured to use a toner that has an average circularity in a range of 0.93 to 1.00 (para.0015: ranges from 0.94 to 0.98).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify either of the primary references to incorporate the toner of Ojima et al. (US Pub. 2004/0191663) in order to effectively prevent the generation of image irregularities during an endurance printing process (para.0014 & 0015).

Regarding claim 16, Yamashiro et al. (US 5,328,795) teach a toner for use in electrophotography wherein the toner is made up of roughly spherical particles with a ratio r2/r1 of a minor axis r2 and a major axis r1 in a range of 0.5 to 1.0, a ratio r3/r2 of a thickness r3 and the minor axis r2 in a range of 0.7 to 1.0, and satisfying a relationship $r1 \geq r2 \geq r3$. In Yamashiro et al. (US 5,328,795), col.4, ln.31-36, the major axis (r1) can be 3-30 μm, the minor axis (r2) can be 1-25 μm, and the flatness is less than 0.5. The flatness is defined as: [2 x (thickness)] / [major axis + minor axis] (col.4, ln.34-36). If the equation:

$$0.5 = \frac{(2 \times \text{thickness})}{(\text{major axis} + \text{minor axis})}$$

is manipulated with both the major+minor values of 3+1 and 30+25, the thickness (r3) works out to be in a range from 1 to 13.75. Taking the lowest and highest set of all the ranges, r2/r1 – ~0.33 to ~0.83 and r3/r2 - ~0.55 to ~1. Also, the values of r1, r2, and r3, satisfy the inequality $r1 \geq r2 \geq r3$.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the toner of the combination that satisfies claim 14, by forming it to have the shape and major/minor axis and thickness ratios as seen in Yamashiro et al. (US 5,328,795) in order to improve "blade cleanability," prevent the toner particles from entering under the blade when the blade scrapes, and prevent toner particles from remaining on the drum after cleaning (col.2, ln.15-32; col.3, ln.25-28).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455), as applied to claim 1, and further in view of Ojima et al. (US Pub. 2004/0191663) and in view of Inoue et al. (JP Pub. 2000-172015).

The limitations of claim 14 are met by the combination as recited above.

However, Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) fail to teach the use of a toner with the specific properties and made by a process as listed in claim 17.

Regarding claim 17, Ojima et al. (US Pub. 2004/0191663) teach an image forming apparatus wherein said developing unit is configured to use a toner that has an average circularity in a range of 0.93 to 1.00 (para.0015: ranges from 0.94 to 0.98).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify either of the primary references to incorporate the toner of Ojima et al. (US Pub. 2004/0191663) in order to effectively prevent the generation of image irregularities during an endurance printing process (para.0014 & 0015).

Regarding claim 17, Inoue et al. (JP Pub. 2000-172015) teach a toner consisting of a polyester having functional groups including nitrogen atoms, a polyester, a colorant and a releasing agent (abstract, SOLUTION).

It would have been obvious to one of ordinary skill in the art at the time of invention to use a toner of this composition in conjunction with the process cartridge of the above recited combination to provide a toner that has a long service life, and excellent color mixability, glossiness and anti-offsetting property (abstract, PROBLEM TO BE SOLVED).

Additionally, claim 17 recites a product made by the method of a cross-linking reaction and/or an extension reaction within an aqueous medium, the toner of Inoue et al. (JP Pub. 2000-172015) could be made by such a process and the limitations of claim 17 are therefore met by Inoue et al. (JP Pub. 2000-172015), see In re Thorpe.

> "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was

Claims 19, 20, and 22, are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455), as applied to claim 1, or alternatively, Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) and in view of Saito et al. (US Pub. 2003/0091366), as applied to claim 23, and further in view of Keen (US 4,816,877).

The combinations teach all of the limitations of claim 1 and 23 upon which claims 19, 20, and 22 depend.

However, the combinations fail to teach refilling or resupplying toner to the cartridge.

Regarding claim 19, Keen (US 4,816,877) teaches a process cartridge which is reusable by receiving a supply of toner (col.1, ln.35-43).

Regarding claims 20, and 22, Keen (US 4,816,877) teaches a process cartridge further comprising: an accommodating part accommodating a supplied toner (col.1, ln.35-43).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify any of the primary references with a refilling hole and the ability for the user to refill toner into an accommodating portion, as in Keen (US 4,816,877), in order to reduce cost to the user by preventing the necessity of replacing the entire cartridge, or paying a recycling center to refill it when only the toner is consumed (col.1, ln.23-27).

Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455), as applied to claim 33, and further in view of Kosuge (US Pub. 2003/004201).

Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) teach all of the limitations of claims 33 and 37 upon which claims 39 and 40 depend and further

teach the cleaning unit comprising a cleaning blade as in claim 40 (fig.2, scraping device that is part of #5 contacting #1).

However, the reference fails to teach the use of a coating mechanism.

Regarding claim 39, Kosuge (US Pub. 2003/004201) teach a cleaning unit (fig.1, #8-10) wherein said cleaning unit comprises a coating mechanism including a coating roller (fig.1, #8) and a lubricant body (fig.1, #10), said coating mechanism coating a lubricant on the latent image bearing member (para.0010, ln.8-10).

Regarding claim 40, Kosuge (US Pub. 2003/004201) teach a cleaning unit wherein said cleaning unit comprises a cleaning blade (fig.1, #9), and said lubricant body is replaceable (para.0008, ln.3-5: if applying lubricant onto a photoreceptor, replacement is required, therefore the lubricant of this system is also replaceable).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the cleaning device of Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) with the lubricant coating device of Kosuge (US Pub. 2003/004201) to prevent toner from adhereing to the surface of the photosensitive drum by applying lubricant to decrease the surface energy of the photosensitive drum (para.0007, ln.1-5).

Claims 49, 50 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455), as applied to claim 1, and further in view of Keen (US 4,816,877).

Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) teach all of the limitations of claim 1 upon which claims 49, 50, and 52 depend.

However, Asano et al. (US 5,289,234) in view of Kubota et al. (US 4,708,455) fail to teach refilling or resupplying toner to the cartridge.

Regarding claim 49, Keen (US 4,816,877) teaches a process cartridge which is reusable by receiving a supply of toner (col.1, ln.35-43).

Regarding claims 50, and 52, Keen (US 4,816,877) teaches a process cartridge further comprising: an accommodating part accommodating a supplied toner (col.1, ln.35-43).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify any of the primary references with a refilling hole and the ability for the user to refill toner into an accommodating portion, as in Keen (US 4,816,877), in order to reduce cost to the user by preventing the necessity of replacing the entire cartridge, or paying a recycling center to refill it when only the toner is consumed (col.1, ln.23-27).

Allowable Subject Matter

Claims 5, 24 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

- Prior art does not disclose or suggest the claimed "said developing position determining member comprises a positioning member positioning the latent image bearing member and the developing agent bearing member, and an angular positioning member determining the main pole direction of the magnet group with respect to the latent image bearing member" in combination with the remaining claim elements as set forth in claim 24.
- Prior art does not disclose or suggest the claimed "a recovery roller recovering toner adhered on the bias roller and the cleaning blade... and said cleaning blade, said bias roller and said recovery roller are independently replaceable" in combination with the remaining claim elements as set forth in claims 5 and 27.

Response to Arguments

Applicant's arguments with respect to claims 1-3,6-23,26,28-30 and 33-52 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura K. Roth whose telephone number is (571)272-2154. The examiner can normally be reached on Monday-Friday, 7:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571)272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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7/10/2008